

Southern Idaho Water Quality Coalition Middle Snake River Improvement Plan

Key Points

- The Middle Snake River is impaired by “nuisance aquatic plant growth” requiring a revised Total Maximum Daily Load (TMDL) for total phosphorus load estimates due to a perceived incorrect water flow used in a previously approved (EPA) TMDL
- Riverine nutrient TMDLs have universally failed to achieve relief from “nuisance aquatic plant growth”
- The Coalition supports continued use of the Mean Water Year Flow albeit with a 50-year period of record for calculating loading capacities in the TMDL
- The Coalition proposes a better, more comprehensive and expeditious water quality improvement plan

Introduction. The Southern Idaho Water Quality Coalition was formed in 2018 to engage a broad spectrum of area land and water users to identify, manage, and increase awareness for water quality issues, projects, and partnerships benefiting the Mid-Snake River and related water bodies. Our interest is to encourage comprehensive water quality improvement projects and programs that achieve conformance with State water quality standards and designated beneficial uses. This document summarizes the challenge, Coalition projects that best address the challenge, and justifies the need for a flexible approach to water quality improvement programs.

The Challenge. To date, federal and state agencies have relied on various Clean Water Act requirements to improve water bodies that are impaired by the presence of “nuisance aquatic plant growth.” In the late 1990s DEQ established a 30% reduction in rooted macrophyte growth in the Gridley Bridge area as the Water Quality Target for nutrients in the Mid Snake reach. The primary regulatory tool being applied to remedy this impairment relies on a Total Maximum Daily Load (TMDL) for total phosphorus, a plant nutrient. TMDL’s are based on water flow and nutrient concentration. This is particularly problematic because the Mid-Snake River water flow is highly regulated for flood, hydropower, and irrigation needs. Considerable disagreement arises because of the great uncertainty surrounding the efficacy of instream nutrient targets, State application of target pollutant concentration as a water quality standard and treating a plant nutrient as a toxic chemical, and the very significant socio-economic costs of the TMDL itself.

Universally (both nationally and internationally) riverine nutrient TMDLs have failed to achieve their desired goals even after investment of millions of dollars over many years. Riverine nutrient TMDLs do not account for ecosystem complexity and assume simple yet false “cause and effect” relationships. In the Mid-Snake River point sources account for approximately 15% of identified phosphorus loads while being held responsible for complete riverine water quality recovery. Riverine nutrient TMDLs also do not account for hydrological and biogeochemical process delays and various legacies of past land use

management practices. The nutrient TMDL assumes nearly immediate recovery of an impaired water body yet legacy issues alone may require an exceedingly long mitigation period before water quality standards can be achieved.

The Mid-Snake River TMDL is further hampered by a variety of additional challenges. There has not been any re-evaluation of the mid-Snake River's beneficial use since 1993 even though there has been a significant decrease in nutrient loading. Regulatory requirements have not kept pace with the science of complex riverine ecosystem restoration and management of aquatic plants. The effectiveness of all stakeholder's efforts to reduce total phosphorus and control sediments has not been adequately assessed because of meager data collection. There has been no monitoring of tributaries to determine their nutrient loads to the river.

Solutions. The Southern Idaho Water Quality Coalition proposes a better, more expeditious water quality improvement plan. This plan accounts for the Clean Water Act requirements to develop waste load and load allocations for nutrient phosphorus and total suspended solids but takes a more holistic or expansive approach based on current scientific understandings and partnerships.

The Coalition recommends continued, as in previous Idaho DEQ and EPA approved, iterations of the Mid-Snake TMDL, use of the Mean Water Year Flow (albeit with a 50-year period of record) as the critical flow for determining the rivers total phosphorus load assimilative capacity. DEQ has adopted a mean water year flow as the statistical method for other nutrient TMDLs throughout the Snake River. Use of such a flow allows beneficial uses to be attained and resource flexibility to implement additional projects.

Additionally, the Coalition has identified water flow and non-point source pollution projects for their initial focus. Investing individually, and with funds from state and federal sources, partnering with the US Bureau of Reclamation and utilizing the technical expertise of Idaho Power Company, water flow scenarios are being modeled in the Mid-Snake River to increase the frequency of higher flows/river elevations during the critical summer period. Initial modeling conducted by the Idaho Power Company suggests this alone would decrease aquatic plant biomass by about 30%.

Further, a recent water rights administration agreement between the Surface Water Coalition and the Idaho Ground Water Appropriators, along with State investment in aquifer recharge targets 200-300 cubic feet per second (cfs) water flow increases in tributary springs to the Mid-Snake. Within the past two years there has been an Eastern Snake Plain Aquifer (ESPA) storage increase of nearly 2.3 million ac-ft. to the ground water resource. Increasing ground water levels will increase flows in adjacent reaches of the Snake River, including the Mid-Snake.

The Twin Falls and North Side canal companies are working to significantly increase sediment traps and wetlands that remove solids and phosphorus from their return flows. The Idaho Dairymen's Association has identified several manure processing techniques to help limit the need for manure application on fields and has instituted a new Phosphorus Index Nutrient Management Program.